

## MarS Board

**Order#:** MarS Board - T6010252



Measuring only 65.46mm by 102.04mm, the MarS Board is a low-cost highly-integrated controller board based on Freescale's i.MX 6Dual ARM Cortex-A9 application processor which encompasses a dual-core platform running up to 1 GHz with 1 MB of L2 cache and 64-bit DDR3 or 2-ch., 32-bit LPDDR2 support. Integrated FlexCAN, MLB busses, PCI Express® and SATA-2 provide excellent connectivity, while integration of LVDS, MIPI display port, MIPI camera port and HDMI v1.4, the i.MX 6Dual provides a scalable solution for consumer, automotive and industrial applications.

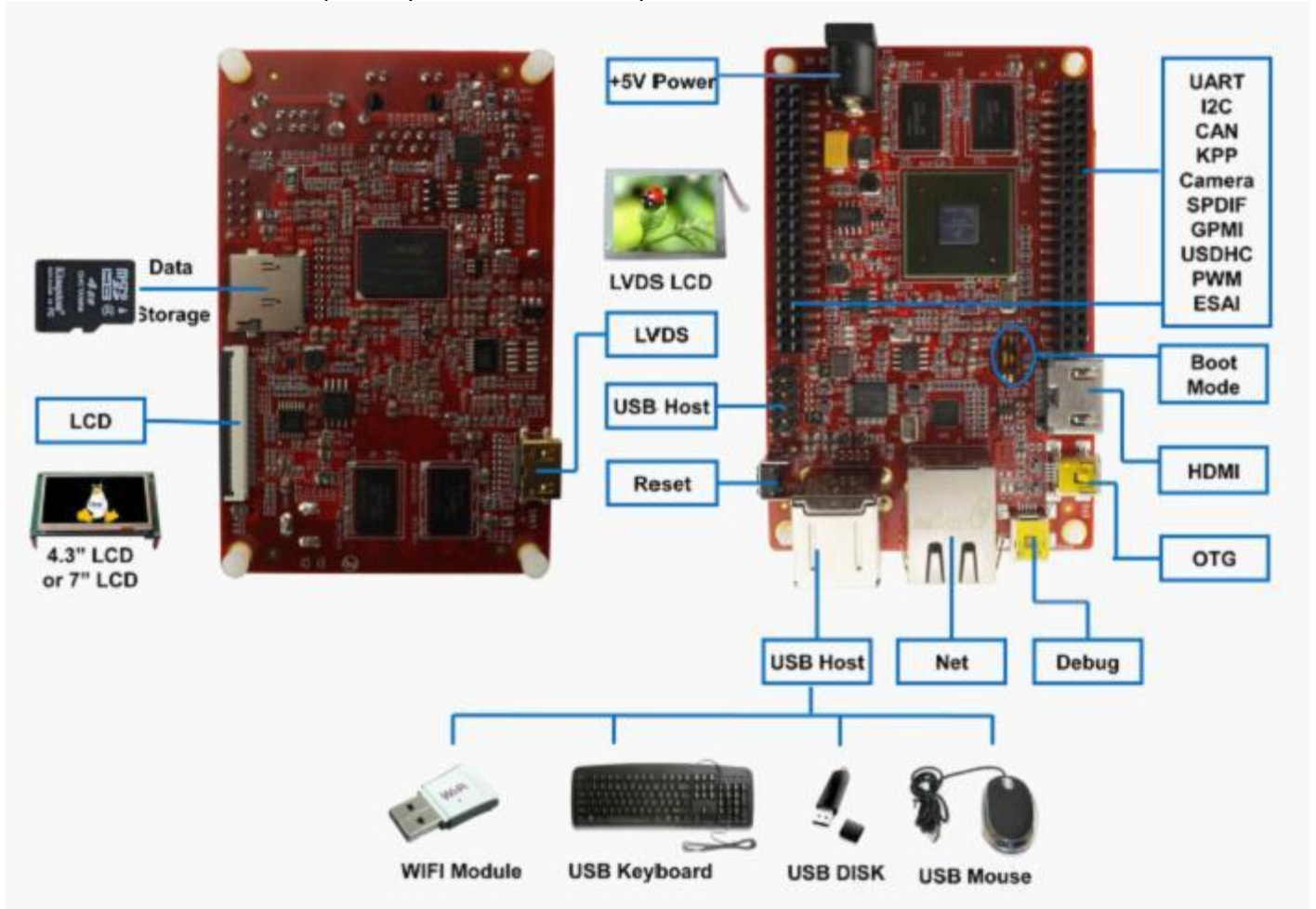
The MarS Board has 4GByte eMMC, 4\*256MByte DDR3 SDRAM and 2MByte SPI Flash on board and features 4 USB Host and 1 USB OTG, 10M/100M/1Gbps Ethernet, TF card socket and three display ports on board (HDMI, RGB, LVDS). More other peripheral signals have been brought out from a pair of 2.54mm space 2\*20-pin board-to-board female connectors such as UARTs, CAN, SPI, I2C, PWM, etc.

The MarS Board is a ready-to-run platform with ported Linux 3.0.15 or Android 4.0.4. Additionally, Embest provides the demo for uC/OS-II V2.92.05 for user experience. It is an ideal core processing component for your end devices based on a single hardware design. This will greatly improve the efficiency and agility of design, shorten the circle of developing, and accelerate the products to come into the market.

Embest also provides many add-on options for the MarS Board such as USB WiFi module (Wi-Pi), HDMI-to-VGA conversion module (Pi-View) and 4.3 inch or 7 inch TFT LCD including touch screen.

These modules have further extended more functions for the MarS Board.

The MarS Board can run separately or work with many accessories as shown below:



## Hardware Features

The MarS Board is a compact controller board featuring the powerful i.MX 6Dual Application Processor. The hardware specifications for the MarS Board are the following:

### Mechanical Parameters

- Working Temperature: 0°C - 50°C
- Humidity Range: 20% - 90%
- Dimensions: 65.46mm by 102.04mm
- Input Voltage: +5V

### Processor

- ARM Cortex A9 MPCore™ 2xCPU Processor at 1GHz
- 1 MB L2 cache
- 32 KB instruction and data caches
- NEON SIMD media accelerator
- HD class 1080p encode/decode video engine
- 2D+3D Hardware Graphics Accelerators (3 GPUs, 200Mtri/s)

### Memories

- 4GByte eMMC
- 1GByte (4\*256MByte) DDR3 SDRAM
- 2MByte SPI FLASH

## Media Interfaces

- LVDS interface
- HDMI 1.4a interface
- Parallel RGB interface

## Data Transfer Interfaces

- USB Ports:
  - 1 x USB2.0 OTG, micro USB, high-speed, 480Mbps
  - 2 x USB2.0 HOST, Type A, high-speed, 480Mbps
  - 2 x USB2.0 HOST, 2.54mm pitch 10-pin connector, high-speed, 480Mbps
- Serial Port: 1 x RS232 Debug serial port, micro USB connector
- TF card interface
- 10M/100M/1Gbps Ethernet Interface (RJ45 jack)

## Others

- Boot mode configuration interface
- 1 DC Jack
- 1 Reset button
- Expansion connectors (2.54mm 2\*20-pin SMT Female Pin Header) bring out signals below:
  - AUDMUX (Digital Audio Multiplexer);
  - Two channel CAN;
  - ECSPI2 (Enhanced Configurable SPI);
  - Two channel I2C;
  - Camera/ Parallel, 8bit or 10bit;
  - KPP (Keypad Port);
  - PWM (Pulse Width Modulation);
  - GPMI (General Purpose Memory Interface);
  - SPDIF (Sony/Philips Digital Interface);
  - Four channel UARTs;
  - USDHC1 (Ultra Secured Digital Host Controller)
  - ESAI (Enhanced Serial Audio Interface)



## Function Block Diagram

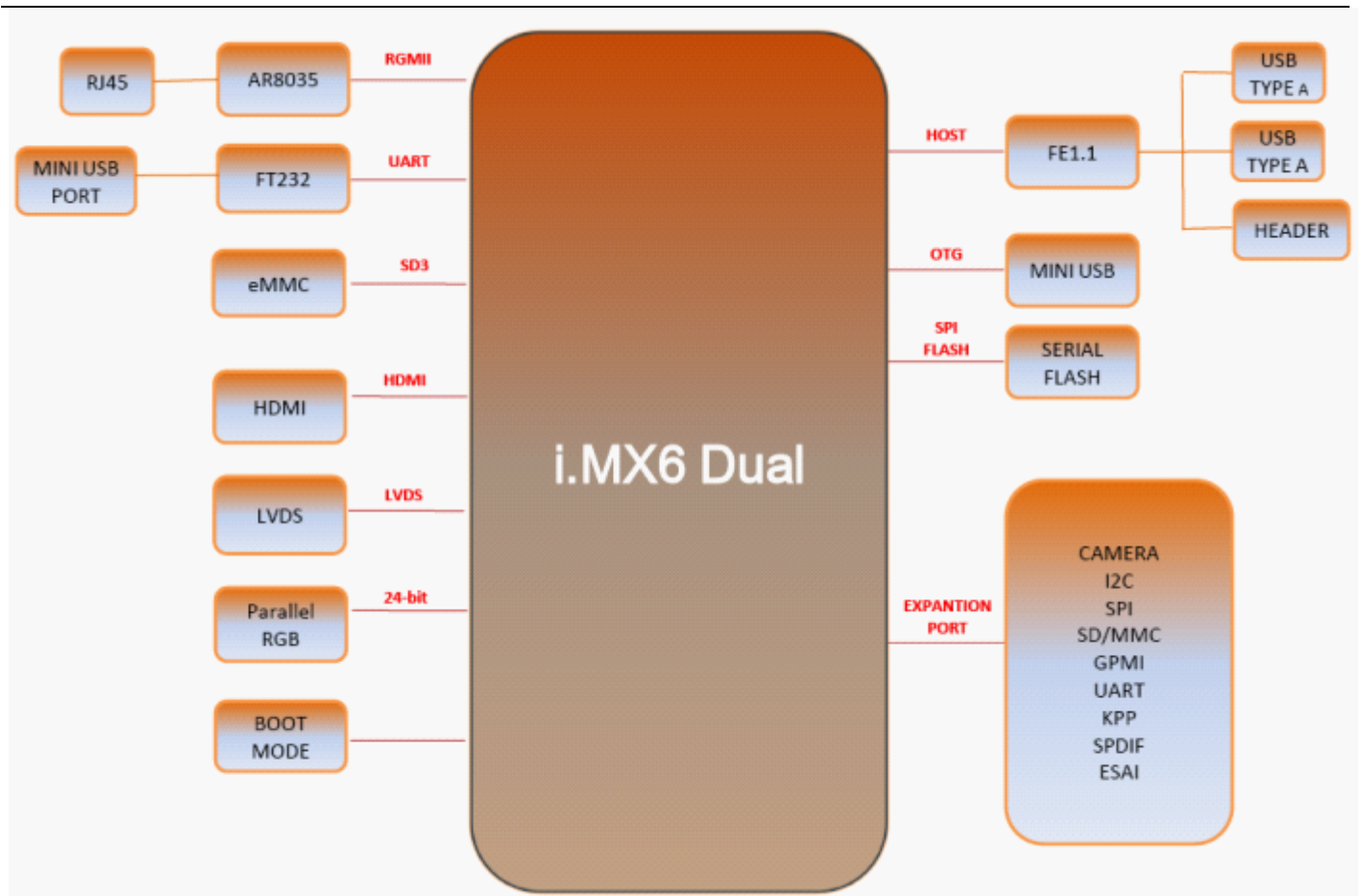


Figure 1-8 MarS Board Function Block Diagram

## Software Features

Items		Notes
OS	Linux	Version 3.0.15
	Android	Version 4.0.4
	uC/OS-II	Version 2.92.05 (Demo only)
Device Driver	Serial	Series driver
	Rtc	Hardware clock driver
	Net	10M/100M/1Gbps IEEE1588 Ethernet
	Flash	Spi flash driver
	Display	Three display ports (RGB, LVDS, and HDMI 1.4a)
	mmc/sd	Dual SD 3.0/SDXC card slots & eMMC
	Usb	3 High speed USB ports (2xHost, 1xOTG)
	Audio	Digital (HDMI) audio
	Led	User leds driver